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E!

for the

YAMAHA

DX7

GREY MATTER

GRey MAtteR REspOnsE inc
made in the USA

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Welcome to E!

That's what you'll see every time you turn on your DX7 now. It means welcome to a brand new world of capabilities for the one keyboard that you thought would never grow old - the DX7. It means expanded memory, programmable function data, and an up-to-date MIDI implementation. It also means exciting new features like Voice Stacking, Random Detune, Patch Mapping, Velocity Processing, and Micro Tuning. All in all, it means your DX7 won't become obsolete.

Along with new ideas and capabilities come new things to learn. In order to take full advantage of everything E! has to offer, GREY MATTER suggests that you read this manual thoroughly - beginning with discussions and examples in the "Getting Started" chapter and continuing with a complete description of each of E!'s System Pages. Once you've taken the time to get to know E!, you'll be ready to explore a whole new world of possibilities with your DX7.

GREY MATTER would like to thank Chris Chahley for his help in the production of this manual.

Getting Started

Let's start with a brief overview of E!'s System Pages. The various features and controls of E! are all accessed through the 5 **System Pages**, which are "activated" by pressing the FUNCTION button once and then pressing the OPERATOR select button repeatedly to "cycle" through each Page. Turn your DX7 on and take a second out to try this:

press the FUNCTION button

This is the **Function Page**. This is where you'll find all of the parameters for dealing with the DX7's controllers plus many new features like Random Detune, Velocity Processing, Timbre, and the Key Assign Modes. All of the parameters found on the Function Page are now programmable - just select a patch and your voice will be set up exactly how you want it..

press the OPERATOR select button

This is the **MIDI Page**. What used to be one button on the original Function Page has been expanded into an entire System Page. This is where you'll set up the various MIDI configurations that are now possible on your DX7. Your E!quipped DX7 can receive and transmit data on all 16 MIDI channels - even merge controller, sequencer, or keyboard data.

press the OPERATOR select button

This is the **Memory Page**, where you'll format cartridges to store voice and function data, transmit bulk data, and initialize voices. The MEMORY PROTECT buttons have also been relocated to this Page.

press the OPERATOR select button

This is the **Scales Page.** Like Yamaha's new DX7II keyboards, your E!quipped DX7 has programmable tuning so you can create alternate scales and play them with any DX7 voice. Don't be afraid - try something new!

press the OPERATOR select button

This is the **Keyboard Page,** the last of E!'s System Pages. This is where you can re-define controller functions (like turning the Foot Controller into a Pitch Bend) and "filter" MIDI data (turn the DX7 into a master controller or even turn Local Control OFF) - it's a very important Page because parameter settings here may affect the function of many features throughout the System Pages.

press the OPERATOR select button

. . . and you're back to the Function Page. If you continue to press the OPERATOR select button repeatedly you'll find yourself cycling through all 5 System Pages.

That's enough of the System Pages for now - we'll come back to each Page in detail later on in the manual. The rest of this chapter consists of examples designed to get you used to working with E! as quickly as possible. You might want to keep these accessories nearby: a DX7 voice cartridge, a Foot Control (Volume) pedal, and another MIDI instrument connected to the DX7's MIDI OUT jack. Just sit down in front of your DX7, follow these procedures, and within minutes you'll be using E! like a pro!

NOTE: the following examples will function only if the DX7 has been properly initialized after installation. Please refer to the Initialization Procedure in the Installation document.

Example 1

One of the main reasons that you had your DX7 E!quipped was probably for the expanded memory - an internal memory of up to 576 patches means no more changing cartridges during a performance. Here's how E!'s memory is organized:
To begin, there are automatically 320 internal patches (an additional 256 patches are available in the ROM Preset Library, which is discussed later on in the manual). These 320 patches are divided into 10 banks of 32 patches a piece.

press the INTERNAL MEMORY SELECT button

Your LCD screen should look something like this:

INTERNAL BANK 4
I4 - 17 !!!!!!!!

read as "Patch 17 of Internal Bank 4. This patch is called '!!!!!!!!'."

To select another Internal Bank, just move the data entry slider. **This new Bank doesn't become active until you press a patch number.** Try it out.
Now, let's load voices from your DX7 voice cartridge into one of E!'s Internal Banks.

1) *insert DX7 voice cartridge*

2) *move the data entry slider to select an empty Internal Bank*

3) *press a patch number to activate the Bank*

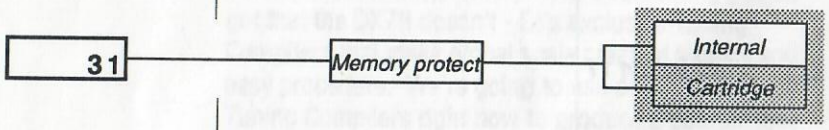
O.K. You've got an active Internal Bank that's empty. The parameters to load voices from a cartridge are located on the Memory Page, so you need to get there.

4) *press the FUNCTION button*

5) *press the OPERATOR select button two times*

. . . and you're on the Memory Page. The first thing to do is turn Internal Memory Protect OFF.

6) *press button 31*

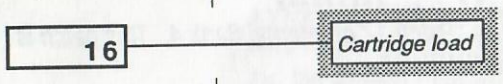


There are two menus for the Memory Protect parameters: Internal and Cartridge. Just press the button repeatedly to choose between the two.

7) turn Internal Memory Protect OFF

The rest is very simple. Just select the Cartridge Load parameter on button 16 and answer "yes"...

8) press button 16



...and you're done! Press the Internal Memory Select button and press a patch number to activate your new Internal Bank of voices. Example 1 is over!

Example 2

begin this example by choosing a voice from one of the Internal Banks

What we're going to do now is very simple, but previously impossible on your DX7: re-define controllers. With E! you can assign different functions to the DX7's three controllers (Mod Wheel, Foot Control, and Breath Control) - each controller can be assigned one of 9 different functions. For this example, we'll turn the Foot Control pedal into a Pitch Bend Control.

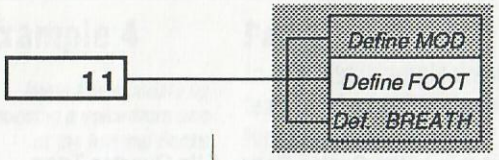
The Controller Definition parameters are on the Keyboard Page, so ...

1) press the FUNCTION button

2) press the OPERATOR select button four times

...and you're on the Keyboard Page.

3) press button 11



These are the Controller Definition menus - you want to choose Foot Control. Now, move the data entry slider to see the possible functions that you can assign to the Foot Control.

4) use the data entry slider to select value

Possible definitions:
MIDI Volume
Control A/Control B
Timbre
Data Slider
Mod Wheel
Foot Control
Breath Control
Pitch Bend Up/Down This is the one we want. Just choose between Pitch Bend Up or Down and you're done. Now, select a voice and play with both hands as you control the Pitch Bend with your foot. Example 2 is over!

Example 3

begin this example by choosing a voice from one of the Internal Banks

Just like Yamaha's new DX7II, your E!quipped DX7 even has Micro Tuning functions for the creation of alternate scales. You can create scales for a "stretch-tuned" piano, or tune each note separately for tuned percussion sounds, or even make a scale with 99 notes per octave. However, there's something you've got that the DX7II doesn't - E!'s exclusive Tuning Compilers that make global scale creation a quick and easy procedure. We're going to use one of these Tuning Compilers right now to produce a quarter-tone scale that is common in the Mid-East and Asia. But first,to adjust the tuning of the DX7, you need to be on the Scales Page.

1) press the FUNCTION button

2) press the OPERATOR select button three times

. . . and this is the Scales Page. E!'s Quarter-Tone Compiler is located on button 10.

3) press button 10

10 — *Quarter Tone compiler*

A common quarter-tone scale is one where all "E" and "B" notes are 1/4 tone low. This is simple enough with the Quarter-Tone Compiler. Press this button repeatedly to choose which note in the scale you are going to adjust. When you see "E" and "B" on the LCD screen just use the data entry slider to turn them 1/4 LO.

4) use the data entry slider to select value

Possible values:
Note is 1/4 tone HI
Note is EXACT
Note is 1/4 tone LO

And that's it! You've just produced a scale never before possible on a DX7. After you play for a while, you can reset the DX7's original scale by pressing button 4 .

5) press button 4

4 — *Reset original scale*

Answer YES and Example 3 is over!

Example 4

begin this example by choosing a voice from one of the Internal Banks

Part 1

In this last example we will explore another new feature of your E!quipped DX7 - programmable function data. Now that you have E! you can store separate function data for every voice, which means no more frantic changes every time you select a patch. E!'s function data even includes new parameters like Key Limits and Key Assign Modes for various MIDI splits. If you plug another MIDI instrument into the DX7's MIDI OUT jack you'll be ready to begin.

1) connect MIDI to DX7

What you need to do now is make sure that the DX7 is set to transmit on the same channel that your other MIDI instrument is set to receive (remember, your E!quipped DX7 can transmit and receive on all 16 MIDI channels). The parameter to select MIDI channels is on the MIDI Page, so . . .

2) press the FUNCTION button

3) press the OPERATOR select button one time

This is the MIDI Page. The MIDI OUT Channel Select is on button 2.

4) press button 2

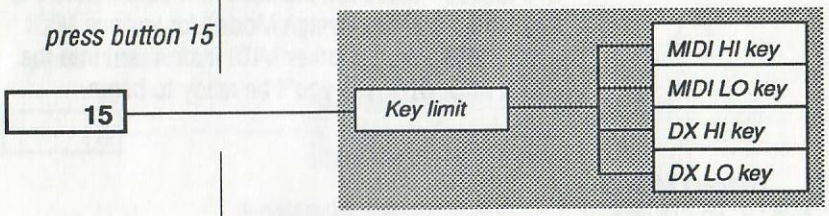
2 — *MIDI OUT ch.*

Use the data entry slider to set the DX7's MIDI OUT channel the same as your other instrument's MIDI IN channel. Once you have that done, you'll want to move over to the Function Page to use E!'s new function parameters.

5) press the OPERATOR select button repeatedly

Since you're already in a System Page all you have to do is press the OPERATOR select button repeatedly to cycle through to the Function Page (the LCD screen will read "E! for the DX7"). Once you are there, you can use E!'s Key Limit parameters to set up a fixed MIDI split. The Key Limits are on button 15.

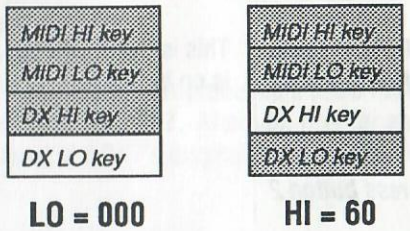
6) press button 15



What we're going to do now is set up a "regular" MIDI split with the split point on the DX7's Middle C note. To do this, you need to change the Key Limits for both the DX7 and MIDI. Let's start by choosing the DX7 Key Limit menus (pressing the button repeatedly will show you the different menus).

7) use the data entry slider to change values

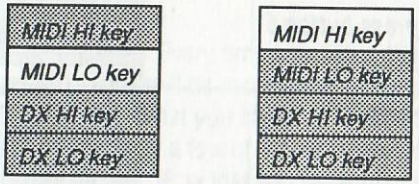
Set the DX7 LO and HI Key Limits to these values:



LO = 000 **HI = 60**

The values that you set correspond to note numbers - now the DX7 plays only between note 000 and note 60, which is Middle C on the keyboard. Let's set the MIDI Key Limits (again, press button 15 repeatedly to choose the different menus).

Set the MIDI LO and HI Key Limits to these values:



LO = 61 **HI = 127**

Now you've got the lowest MIDI note set at 61, which is C#, and the highest possible note set at 127. If everything is set correctly you should have a Fixed Split where the lower half of the keyboard is played by the DX7 and the upper half is played by MIDI. Try it out!

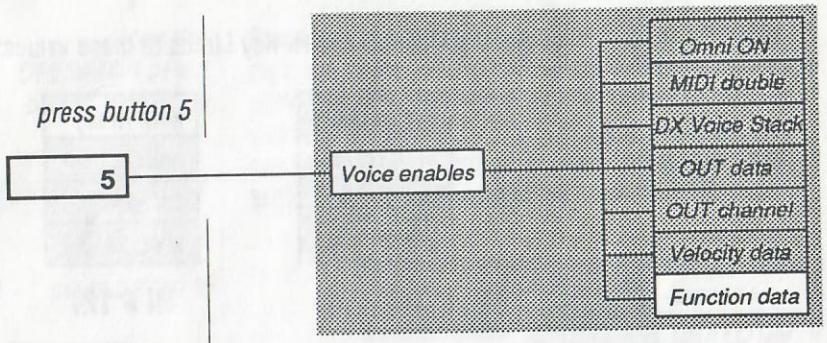
Part 2

O.K. You've got this great MIDI split, but isn't it gonna take a lot of time to set this up when you play live? Not with E!, because every parameter on the Function Page (including the Key Limits) is programmable for each patch! All you have to do now is save your voice with the new function data values. However, before we go any further, we need to enable (turn ON) the Programmable Function Data parameter on the Keyboard Page.

1) press the OPERATOR select button repeatedly

Since you're already in a System Page all you have to do is press the OPERATOR select button repeatedly to cycle through to the Keyboard Page (the LCD screen will read "Keyboard Control"), where you'll find the Voice Enables, a feature that allows you to turn certain E!-exclusive parameters ON or OFF.

2) *press button 5*



These are the Voice Enables, which selectively turn certain parameters (like Programmable Function Data) ON or OFF. Just select the Function Data menu and turn it ON. Please note that enabling Function Data means that every time you save a voice, the settings on the Function Page will be saved along with that voice - so, if you want different function data for every voice, you must individually save them with their new function data values.

Now that you've enabled Programmable Function Data, storing your voice along with the MIDI split is simple. First, turn Internal Memory Protect OFF (if you followed the Examples straight through, it should still be OFF. If not, the Memory Protect buttons are on the *Memory Page, button 31*).

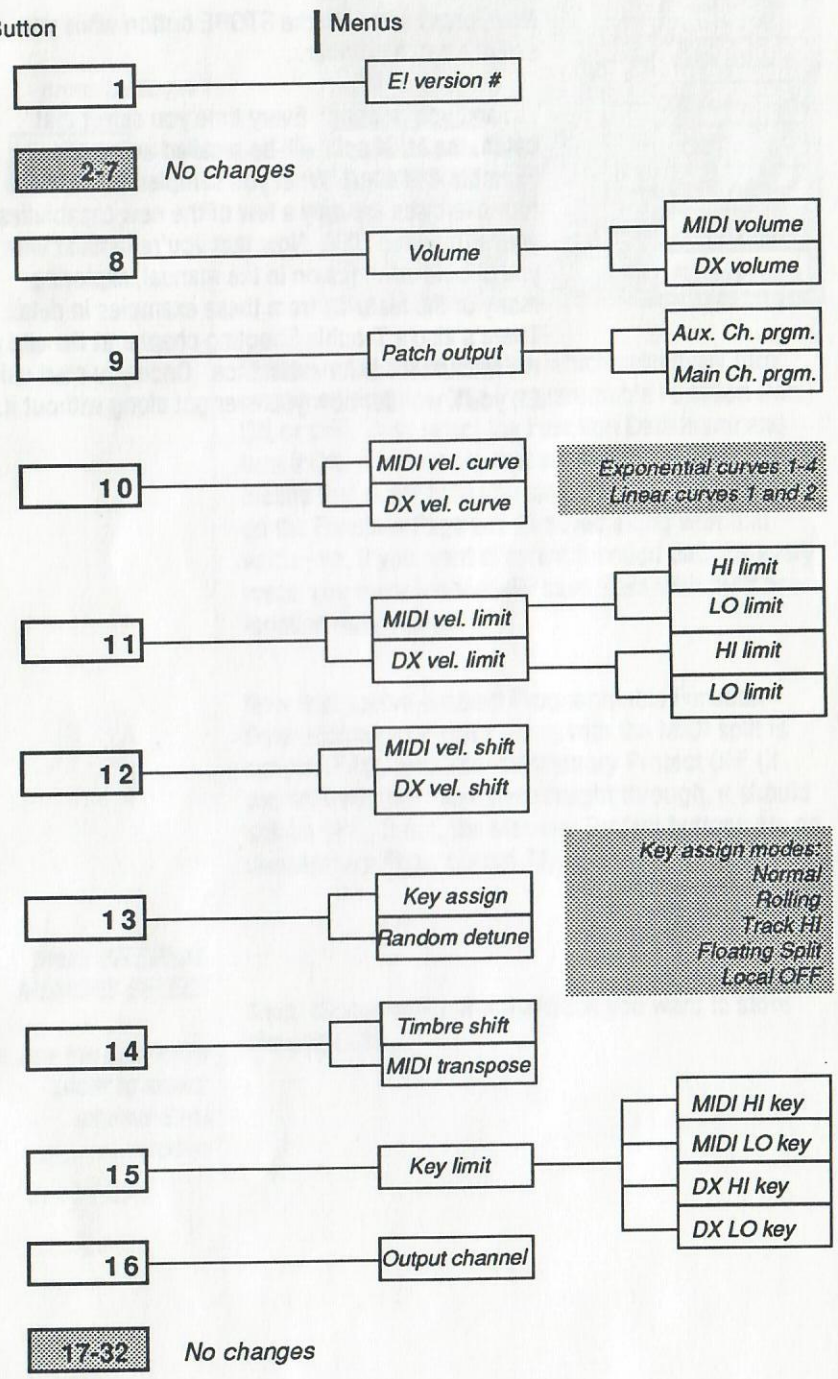
3) *press INTERNAL MEMORY SELECT*

4) *use the data entry slider to select Internal Bank number*

Next, choose which Internal Bank you want to store the voice into.

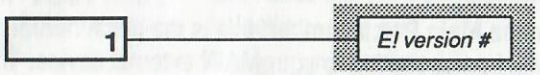
Now, press and hold the STORE button while you select a patch number. . .

. . . and you're done! Every time you select that patch, the MIDI split will be recalled automatically. Example 4 is over! What you sampled in the these four exercises are only a few of the new capabilities in your E!quipped DX7. Now that you're familiar with E!, you should continue on in the manual, exploring many of the features from these examples in detail. There's also a Trouble Shooting chapter at the end of the manual for extra assistance. Once you start using E!, you'll wonder how you ever got along without it.

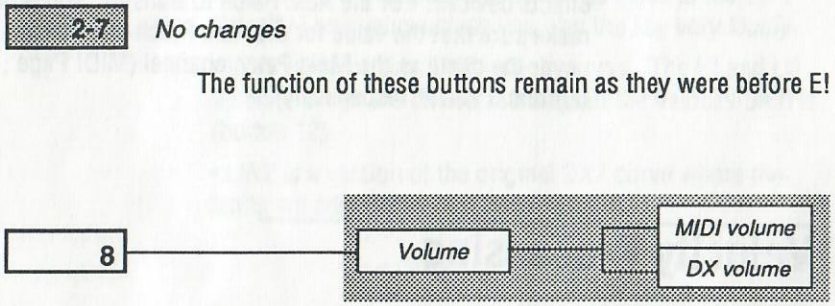


The Function Page

The first of E!'s System Pages is the Function Page. On this page you may adjust all of the original function parameters normally found on a DX7 as well as the many new ones that are made possible by E! - plus, you now have the ability to store each of these parameters per patch. To adjust these parameters, simply press the FUNCTION button once or cycle through the System Pages until the LCD screen says "E! for the DX7."

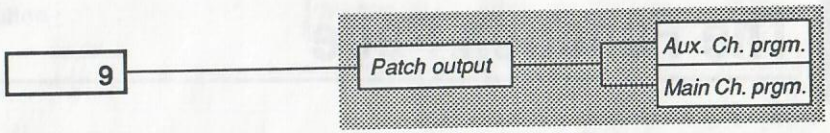


E! VERSION NUMBER The version number is an important indicator of the current state of your E! software and should be referred to in any correspondence with GMR.



The function of these buttons remain as they were before E!

VOLUME There are two menus for this button: DX Volume and MIDI Volume. Whenever a patch is called your DX will now automatically set its overall volume level according to the value you choose (0 to 7). If you have enabled the "OUT DATA" parameter on the Keyboard Page (button 5), then E! will also transmit a MIDI volume command to your external MIDI device.



PATCH OUTPUT One of E!'s most exciting features for users of MIDI systems is the transmission of patch maps. Both the Main Patch and Aux. Patch menus allow access to the entire range of 128 MIDI patches (0-127), so any DX7 patch can now transmit out any patch number to change patches on external MIDI devices. As with the programmable MIDI Volume, you must enable "OUT DATA" on the Keyboard Page (button 5) for data transmission.

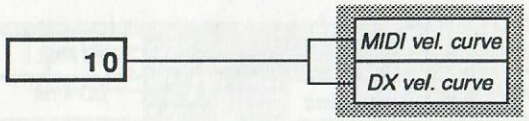
NOTE: If you have enabled the transmission of System Exclusive data (SYS/EX), FM voice data will be transmitted instead of the main patch number.

About the Main Patch number: this is the patch number that will be transmitted to your MAIN external device. In other words, the number stored as the Main Patch number will be transmitted over the MIDI OUT channel.

About the Aux. Patch number: this is the patch number that will be transmitted to your AUXILLIARY devices, normally reserved for reverbs, delays, and other MIDI effects devices. For the Aux. Patch to transmit you must make sure that the value for the Aux. Patch channel is never the same as the Main Patch channel (MIDI Page , buttons 3 and 2, respectively).

Velocity Processing

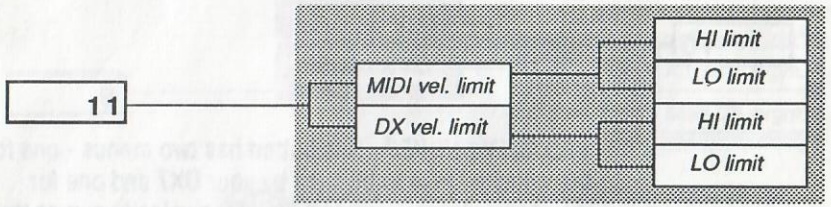
The next three buttons - 10,11, and 12 - contain parameters that interact with one another to dynamically process velocity information. It's important to understand and experiment with this interaction in order to take full advantage of E!'s exclusive Velocity Processing.



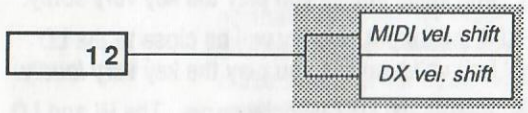
VELOCITY CURVES This button has two menus - one for the velocity curve to be used by your DX7 and one for your MIDI slaves. Here is a list of the velocity curves that are available (simply move the data entry slider to change curves):

NOTE: the "VELOCITY DATA" parameter on the Keyboard Page (button 5) must be enabled for Velocity Processing to function. Without this enabled, you will find that the Velocity Curves are locked at LIN1 and the Velocity Limits are not adjustable.

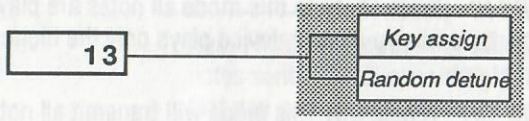
- With EXP1 it's easy to produce performances with two major velocity limits: *soft* and *loud.* Hitting keys softly will bring you close to the LO Velocity Limit (see button 11), while hitting keys hard will bring you close to the HI Velocity Limit. When you play with medium velocity, you will notice a drastic change from LO velocities to HI velocities.
- With EXP2 you will be able to produce performances that require one medium velocity most of the time, and only deviate from that "middle ground" when you play keys *very hard* or *very soft.*
- With EXP3 the output velocity will be close to the HI Velocity Limit value unless you play the key *very softly.*
- With EXP4 the output velocity will be close to the LO Velocity Limit value unless you play the key *very loudly.*
- LIN1 is the original DX7 velocity curve. The HI and LO Velocity Limits are not adjustable, but the Velocity Shift is (button 12).
- LIN2 is a version of the original DX7 curve where the limits are adjustable.



VELOCITY LIMITS let you "shape" the velocity curve by setting the highest allowable velocity (HI limit), and lowest allowable velocity (LO limit) of the current curve. There are four menus: MIDI Upper and Lower Limit, and DX Upper and Lower Limit. This function is very useful in that you can set your MIDI limits independent of your DX limits. For example, using the EXP1 Velocity Curve you can set *both* your MIDI HI and LO limits to a relatively high value while the DX LO and HI limits are set to their lowest and highest values, respectively. Now, when you play, your DX will sound when you play very soft and very hard but your MIDI slave will sound *only* when you play very hard.



VELOCITY SHIFT lets you bias the velocity processing algorithm towards the HI Velocity Limit (if the Shift value is positive), or towards the LO Velocity Limit (if the Shift is negative). There are two menus - one for the amount of shift on MIDI slave velocity and one for the shift on DX7 velocity. For example, playing the keyboard with a high, positive MIDI Velocity Shift will allow you to use the LIN1 curve (the original DX7 velocity curve) and still transmit velocities all the way up to 127 (stock DX7's can't do this).



KEY ASSIGN MODES and RANDOM DETUNE are the two menus that can be found under this button.

About the Key Assign modes: E! has 5 different Key Assign modes for various MIDI splits (use the data entry slider to change modes):

- *NORMAL* This is the DX7's original key assign mode.
- *ROLLING* In this mode notes alternate between the DX7 and MIDI devices. One possible use for this mode is a set-up with your DX and a TX module, both playing slightly different versions of the same patch. By playing these in the Rolling mode you will end up with a richer, textured sound (you can even pan your DX and MIDI device to different channels for special stereo effects).
- *FLOT HI* (right-handed Floating Split) In this mode any notes played by your right hand will be voiced by the DX while any notes played by your left hand will be voiced by your MIDI device. This differs from a Fixed Split, however, because in this mode the split point will *dynamically move up and down the keyboard as you play.* Here's how it works:

When a note is played in the right hand, E! will keep track of the highest note that is being played (sustained notes don't count). Any notes within a certain interval down from the highest note are judged to have been played by your right hand, while any notes below this "soft split" point will be judged to have been played by your left hand. The interval between the highest and lowest right hand notes is also programmable, so you can fine tune this key assign mode to your specific needs (see "The Keyboard Page" chapter, button 9). You can even set it up so that your DX voices overlap your MIDI voices.

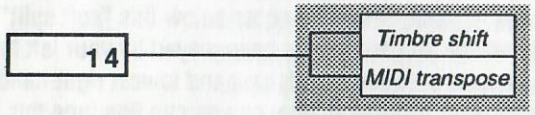
NOTE: The LCL OFF Key Assign Mode differs from an actual Local Control OFF (for use with sequencers). See "The Keyboard Page", button 4 for information on Local Control OFF.

- *TRK HI* (Track High) In this mode all notes are played by the DX while your MIDI device plays only the highest current note.
- *LCL OFF* (Local Off) This mode will transmit all notes to MIDI only and not voice the notes on the DX.

About Random Detune: Normally, when you play a note on a DX7 the tuning of that note is exactly in tune, that is, there are never errors in intonation that naturally occur in acoustic music. E!'s exclusive Random Detune changes all that by allowing you to select a range of accuracy for the internal tuning system of your DX7. Random Detune is very different from a normal detune in that *each note will have its own detune value.* There are 5 ranges of Random Detune (simply move the data entry slider to change ranges):

- *Range 0* is the tuning action of the original DX7; that is, Random Detune is disabled.
- *Ranges 1-4* will apply a random amount of detune to each note within a range of 1.17 cents (Range 1), to within approximately 40 cents (Range 4).

Random Detune can be put to very good use on almost every one of your internal voices - especially if you combine it with Velocity Processing and Voice Stacking to fatten up the sound of your DX.

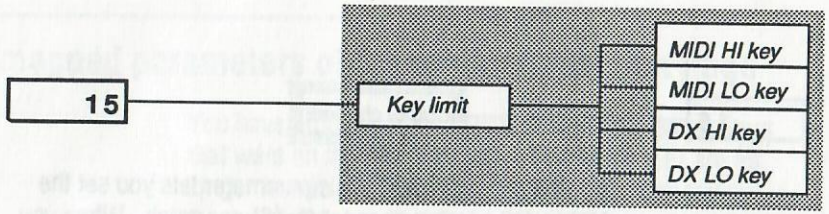


MIDI TRANSPOSE and TIMBRE This button has two menus: one for the transposition of all notes sent to MIDI, and one for adjusting the timbre of a DX voice.

About MIDI Transpose: E! will automatically transpose all notes sent to MIDI according to the transposition value that you set. Simply move the data entry slider to change this value.

About Timbre: E!'s Timbre control lets you make quick changes in the overall harmonic content (bright vs. dull) of a DX7 patch. Timbre works by scaling the output level of any operator that is currently being used as a modulator. When Timbre is used on pre-programmed voices, it has the effect of allowing you to "scale down" the timbre of a patch. When Timbre is used while programming new sounds that will be played on an E!quipped DX7, you should try programming the voice with the Timbre setting at less than full value. This way, you will be able to "boost" as well as "scale down" the harmonic content of the patch.

NOTE: The highest possible value for Timbre is 63.



KEY LIMIT With Key Limits you can set fixed split points anywhere on the DX keyboard. There are four menus: the MIDI HI and LO Key Limits, and DX HI and LO Key Limits. By setting the MIDI and DX limits independently you can customize the keyboard for the exact split situation you need. The values that you see correspond to MIDI note numbers - both the DX and MIDI are able to send/receive the full range of MIDI note numbers (0-127), while the range of the DX7's keyboard itself is 36-96. There are three ways that E! responds to the MIDI and DX Key limits:

- *If the LO limit is **lower** than the HI limit there will be a central zone where notes are active.* This is the way you will normally have them set. For a Fixed Split, all you have to

do is set one side's HI Key Limit exactly one note below the other side's LO Key Limit, while the remaining Limits are set to the extremes of the MIDI note range, respectively. Now you've got a fixed split. Using the Key Limits your split points can even overlap. See the Fixed Splits example in the "Getting Started" chapter for more information.

NOTE: Use the Key Limits with the Track HI Key Assign Mode(button 13) to make sure that the MIDI note does not jump down to the left hand when the right hand is released. Just limit the lowest note transmitted to MIDI.

• *If the LO limit is* ***equal*** *to the HI limit only one note will be active.* This is something that you obviously want to avoid, unless you have a special need for one note splits.

• *If the LO limit is* ***higher*** *than the HI limit there will be a "dead zone" between the two limits.* This can be useful if you want to have a split where one patch is surrounded by the other. Just set up one side in this way (LO limit higher than HI limit) and then "place" the other side within the first side's dead zone (i.e. MIDI LO Key Limit = lowest note of DX dead zone, MIDI HI Key Limit = highest note of DX dead zone).

16 — *Output channel*

MIDI OUT CHANNEL This parameter lets you set the MIDI transmission channel (1-16) per patch. When you change a DX patch, any MIDI notes that are depressed on the keyboard at the time of a patch change will be shut off on the old channel and then re-transmitted on the new one. This parameter can be enabled/disabled on the Keyboard Page (button 5).

17-32 *No changes*

The function of these buttons remain the same as they were before E! with the exception that the controller range is now 0-15 instead of 0-99. This does not affect the overall sensitivity of these controllers in any way, only the number of steps within the range (in other words, the new value of 15 *equals* the old value of 99). This new controller range is now the same as on a Yamaha TX module.

Programmability on the Function Page

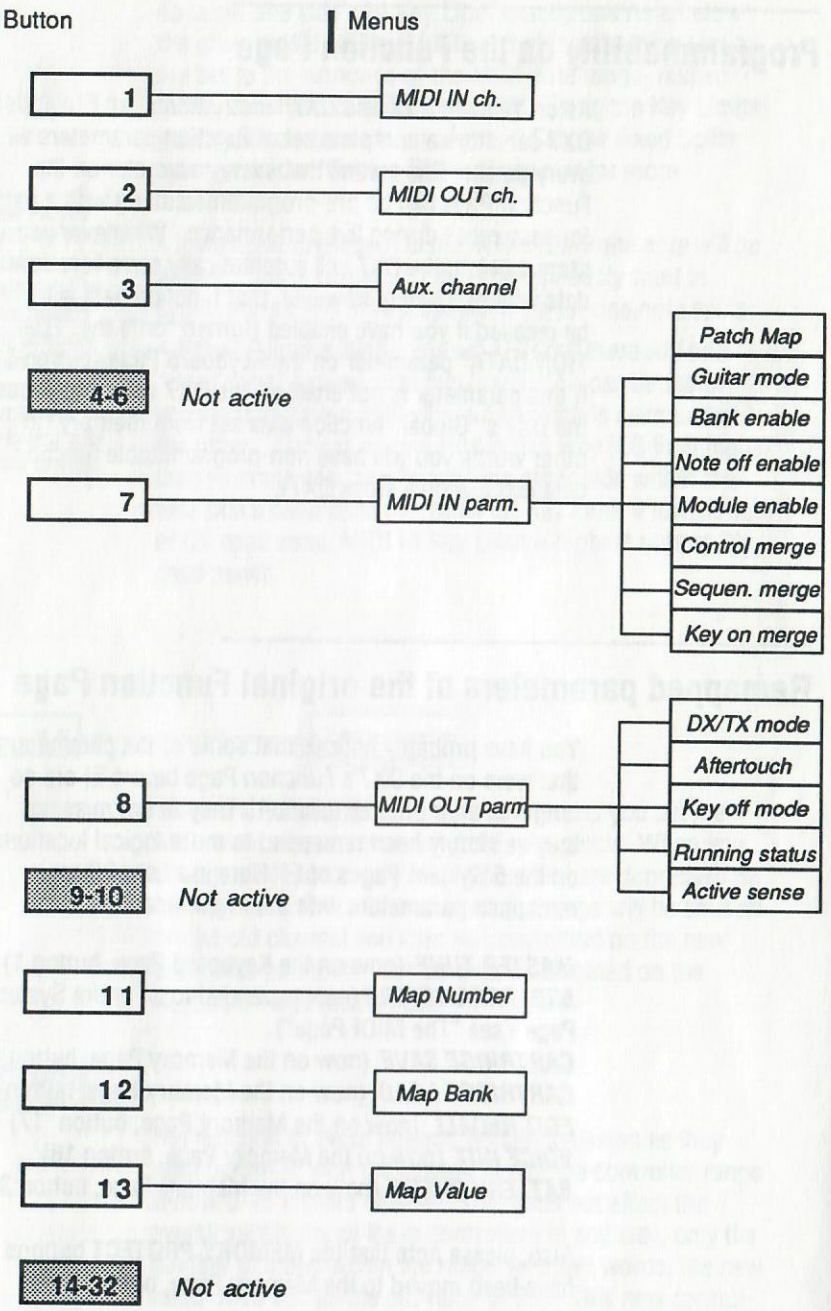
As on Yamaha's TX and DX7II instruments, an E!quipped DX7 can store a complete set of function parameters with every patch. This means that every parameter on the Function Page can be pre-programmed along with a patch for easy recall during live performance. Whenever you store a patch, the DX7 will automatically store function data with that patch, however, that function data will only be recalled if you have enabled (turned "on") the "FUNCTION DATA" parameter on the Keyboard Page (button 5). If this parameter is not enabled, the DX7 will simply load the DX7's "Global" function data set from memory (in other words you will have non-programmable function data just like on a stock DX7).

Remapped parameters of the original Function Page

You have probably noticed that some of the parameters that were on the DX7's Function Page before E! are no longer in their original location. They're not missing, they've simply been remapped to more logical locations on the 5 System Pages of E! Here is a list of these remapped parameters with their new locations:

MASTER TUNE (now on the Keyboard Page, button 1)
MIDI PARAMETERS (now expanded to an entire System Page - see "The MIDI Page")
CARTRIDGE SAVE (now on the Memory Page, button 15)
CARTRIDGE LOAD (now on the Memory Page, button 16)
EDIT RECALL (now on the Memory Page, button 17)
VOICE INIT (now on the Memory Page, button 18)
BATTERY CHECK (now on the Memory Page, button 30)

Also, please note that the **MEMORY PROTECT** buttons have been moved to the Memory Page, button 31.



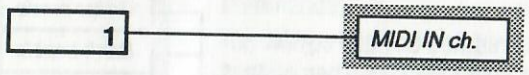
The MIDI Page

The second of E!'s System Pages is the MIDI Page, which contains a number of parameters that can be used to tailor the DX's MIDI implementation to your specific needs. These parameters can be organized into three groups:

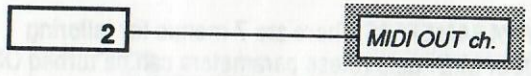
- MIDI Channel selection
- MIDI IN/OUT parameters
- MIDI IN Patch Mapping

To adjust these parameters, simply press the FUNCTION button once and then press the OPERATOR Select button once.

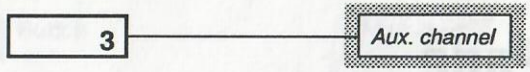
MIDI Channel selection



MIDI IN CHANNEL lets you select the channel number (0-16) that will be input to your DX7. If the OMNI mode is enabled on the Keyboard Page (button 5), the DX7 will receive input from all MIDI channels.



MIDI OUT CHANNEL lets you select the channel number (0-16) that will be output from your DX7. Please note if you have enabled the changing of MIDI channels with each patch (i.e., the programmable MIDI Out Channel on the Function Page, button 16) this parameter will change automatically with each patch.

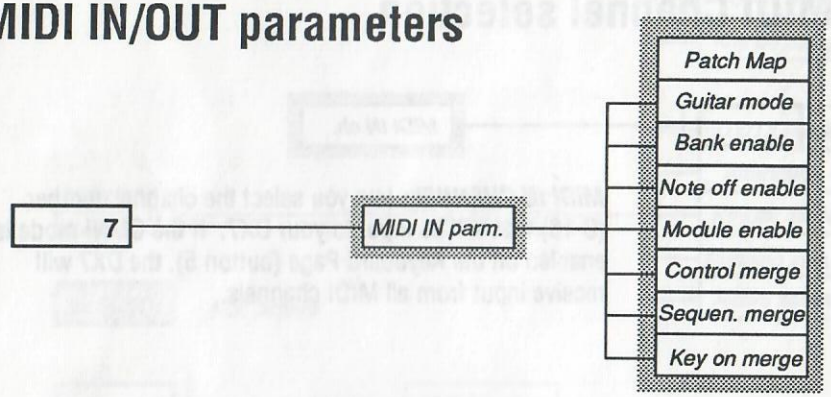


AUXILIARY CHANNEL is normally used to transmit channel numbers to an external MIDI device such as a delay or reverb in conjunction with the Patch Output on the Function Page (button 9, menu 2). One other use for this parameter is in conjunction with MIDI Double (see "The Keyboard Page" chapter, button 5), so any keys that are voiced by the DX7 will also be transmitted over MIDI on the Aux. channel. Please note, however, that the Aux. channel can transmit only key on and key off commands.

NOTE: the Auxiliary Channel number and the MIDI OUT Channel number should always be different.

4-6 *Not active*

MIDI IN/OUT parameters



MIDI IN PARAMETERS There are 7 menus for tailoring the input of MIDI data (these parameters can be turned ON or OFF by using the data entry slider):

- *Patch Map* when this parameter is ON, incoming patch change commands are processed by the Input Patch Map (see buttons 11,12, and 13).
- *Guitar Mode* puts the DX7 into a special "pseudo-Mono Mode" for those who wish to use a guitar controller to play the DX.

- *Bank Enable*
- *Module Enable*

These two parameters are for use with editor/librarians that support E!'s special bulk data receive/transmit format.

- *Notes OFF* The MIDI spec. includes a special "All Notes OFF" command that instructs an instrument that is receiving MIDI to stop playing any notes that are currently sounding.

NOTE: Sometimes when a DX7 receives the "All Notes OFF" command an audible "thump" can be heard (this is often the case with instruments manufactured by Roland Corp.). To get rid of this "thumping", make sure that the Notes OFF Enable parameter on the DX7 is turned OFF.

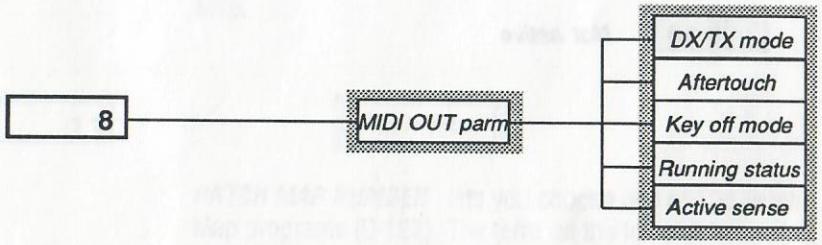
- *Controller Merge*
- *Sequencer Merge*
- *Key Merge*

These three menus let you combine the DX's MIDI IN data with its MIDI OUT data (all Controller and Key Merge data will be transmitted on the same channel as the DX's MIDI OUT channel).

Controller Merge will re-transmit incoming controller data as though it had come from the DX7's own controllers (the sustain pedal will not merge unless Key Merge is ON).

Sequencer Merge will re-transmit any recognizable incoming sequencer timing data (clocks and start/stop commands).

Key Merge lets you combine any incoming key on/key off/ sustain pedal data with data that comes from the DX7's local keyboard. This means that in addition to a straight merge, you may use an external keyboard to drive E!'s various key assign modes.



MIDI OUT PARAMETERS There are 5 menus for tailoring the output of MIDI data (use the data entry slider to change modes or to turn parameters ON/OFF):

• *DX/TX Modes* affect the transmission of MIDI bulk data. In the DX Mode, only voice data will be present in MIDI transmit. In the TX Mode, both voice and function data will be sent.

• *AfterTouch* should almost always be set at the "NORM" mode. If, however, you are transmitting aftertouch to a very early DX7 or to a QX1 sequencer, this parameter should be set at the "CONT" mode.

• *Key OFF* should normally be at the "V=0" mode. The "Key OFF" mode is used only when transmitting MIDI to a device that requires MIDI Key OFF status. As of 1987, no instruments are known to have this requirement.

• *Running Status* should normally be ON. Turn this OFF only when you suspect that one of your MIDI devices is unable to accept running status.

• *Active Sensing* constantly reminds your other MIDI devices that your DX7 is on and functioning properly. Turn Active Sensing OFF only if one of your MIDI devices exhibits side-effects when receiving Active Sensing data. For instance, the CD-ROM drives on some sampling systems will not work correctly when Active Sensing data is present.

9-10 *Not active*

MIDI IN Patch Mapping

Just as your E!quipped DX7 can transmit OUT any patch change number, so can it now receive IN any patch change number - however, the official MIDI specification defines that only 128 different patches may be accessed through MIDI, and these patches are accessed in sequence (in other words, you are able to select only the first 128 patches). Since your DX7 now contains between 320 and 576 patches internally, the limitations of this spec should be obvious. E! lets you partially circumvent this limitation through the use of the Input Patch Map. Although you still won't be able to receive more than 128 patch changes, the Input Patch Map will re-direct the patch change commands to any patch in the DX's memory, whether it's from E!'s 320 internal voices, from the ROM preset library, even from cartridge memory. For instance, sending the DX7 a "00" can call a voice on the cartridge, while sending a "01" can call a voice on internal bank 8 (see example). It's completely up to you.

NOTE: The Patch Map parameter (button 7) must be turned ON for the Input Patch Map to function.

PGM 15=INT7-22

read as "Patch Map program 15 will call up DX patch number 22 of Internal Bank 7"

The next three buttons - 11, 12, and 13 - will let you define the Input Patch Map. Each button affects different values, but it is their composite that produces the Input Patch Map.

11 — *Map Number*

PATCH MAP NUMBER lets you choose one of 128 Patch Map programs (0-127). The term on the left side of the LCD screen is the program number and can be adjusted by moving the data entry slider. When an external MIDI device sends one of these program numbers E! will re-direct the command to the bank and patch specified.

NOTE: For buttons 12 and 13 to be selected you must turn Internal Memory Protect OFF (Memory Page, button 31).

12 — *Map Bank*

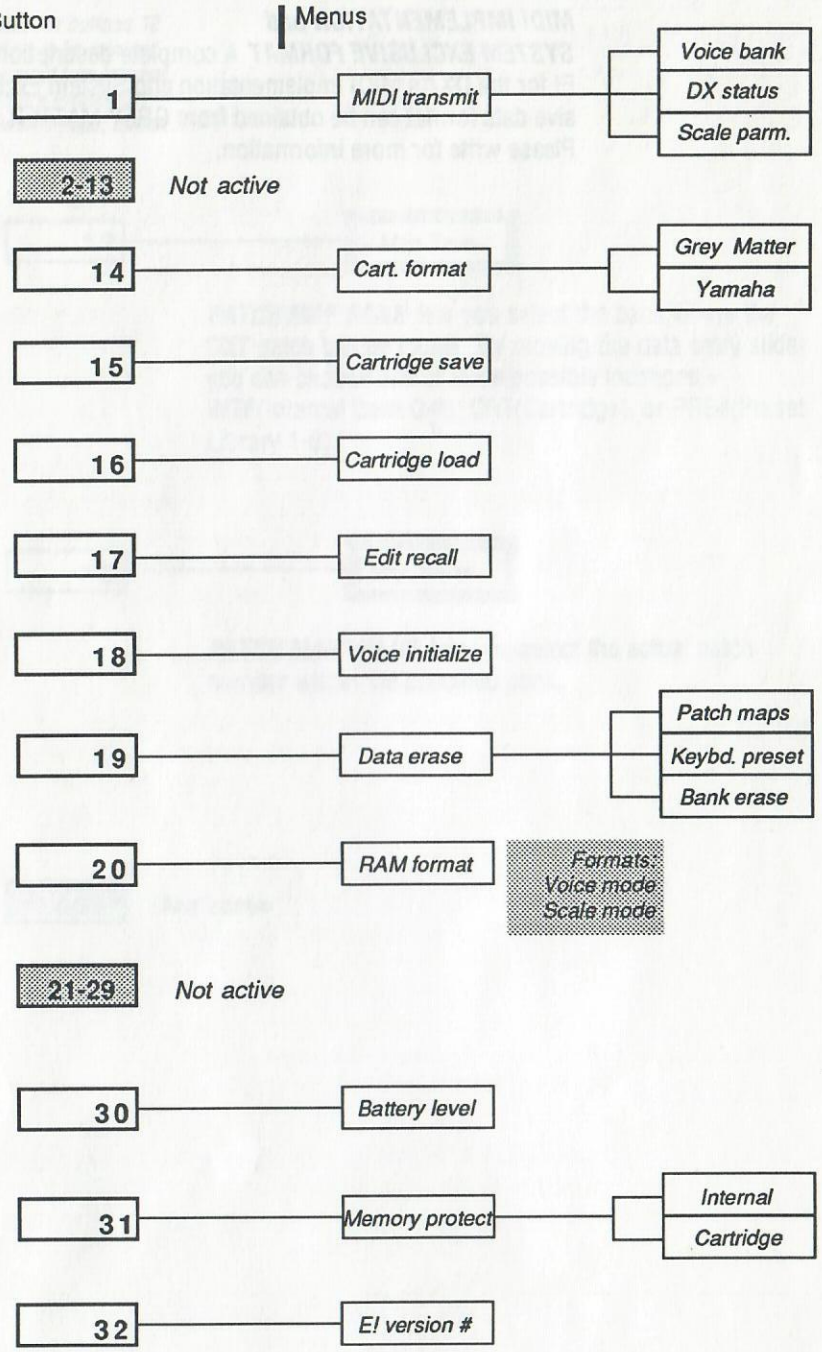
PATCH MAP BANK lets you select the bank where the DX7 patch can be found. By moving the data entry slider you can choose one of three possible locations - INT#(Internal Bank 0-9), CRT(Cartridge), or PRE#(Preset Library 1-8).

13 — *Map Value*

PATCH MAP VALUE lets you select the actual patch number within the specified bank.

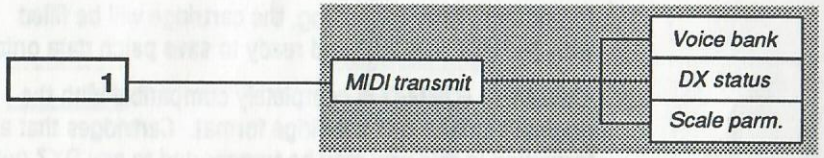
14-32 *Not active*

MIDI IMPLEMENTATION and SYSTEM EXCLUSIVE FORMAT A complete description of E! for the DX7's MIDI implementation and System Exclusive data format can be obtained from GREY MATTER. Please write for more information.



The Memory Page

The third System Page is the Memory Page, which contains parameters for managing E!'s expanded memory - from memory transmission and bank initialization to RAM format and memory protect functions. To open the Memory Page just press the FUNCTION button once and then press the OPERATOR select button twice.



MIDI TRANSMIT These three menus provide a quick and easy way to transmit various data to other MIDI equipment. When ready to transmit, simply press the YES button and E! will send the data. Any of these transmit parameters will function regardless of the DX Memory Protect state or the MIDI OUT System Exclusive state.

• *TRANSMIT VOICE BANK* will transmit the bank of voices that *you are currently listening to.* If the MIDI OUT parameter (MIDI Page, button 8) is set to "TX"mode, voice and function data will be transmitted; if it is set to "DX"mode, voice data only will be transmitted. Please note that all data is transmitted in a Yamaha compatible format and that the E! exclusive parameters like Key Assign Modes, Random Detune, Voice Stacking, etc. are not transmitted.

• *TRANSMIT DX STATUS* will transmit Input Patch Map data and Keyboard Preset data.

• *TRANSMIT SCALE* If you have your RAM formatted in the Scale Mode(see button 20), then all 16 scales will be transmitted. Otherwise, the current Scale Edit buffer will be sent.

2-13 *Not active*

14 — *Cart. format* — *Grey Matter* / *Yamaha*

CARTRIDGE FORMAT will let you choose between two patch data formats: the Yamaha DX format, which stores only voice data, and the GMR format, which stores voice and function data. Push the YES button to begin the formatting. After formatting, the cartridge will be filled with 32 "INIT VOICES" and ready to save patch data onto.

• *YAMAHA FORMAT* is completely compatible with the original Yamaha DX7 cartridge format. Cartridges that are formatted in this way may be transported to any DX7 (with or without E!).

• *GMR FORMAT* is a special format that allows E!quipped DX7s to store all programmable patch parameters for an entire bank of patches (32 patches) onto a single cartridge. These patch parameters include all voice and programmable function data described in "The Function Page". Cartridges that are formatted in this way may be transported to an E!quipped DX7 only (these cartridges may not be used with stock DX7s until they are reformatted in the Yamaha format).

NOTE: In order to access buttons 14 and 15, Cartridge Memory Protect must be OFF (button 31).

15 — *Cartridge save*

CARTRIDGE SAVE will take the Internal Voice Bank that *you are currently listening to* and transfer it to the cartridge. Just push the YES button and E! will automatically sense which format (Yamaha or GMR) the cartridge is in and transfer the bank.

16 — *Cartridge load*

CARTRIDGE LOAD will take patch data that is on cartridge and transfer it to the Internal Voice Bank that *you are listening to*. Just push the YES button to begin loading. If the cartridge has been formatted as GMR, voice and function data will be transferred into memory. If the cartridge has been formatted as Yamaha, only voice data will be read and E! will automatically store one set of global function data with each patch. The function data on these patches can then be adjusted individually and saved with the voice data.

NOTE: In order to access button 16, Internal Memory Protect must be OFF (button 31).

17 — *Edit recall*

EDIT RECALL will recall the last voice that was edited since power up. Unlike a stock DX7, E! will not place you into the Edit mode after the voice is recalled.

18 — *Voice initialize*

VOICE INIT will load the "INIT VOICE" into the Edit Buffer. Again, unlike a stock DX7, E! will not place you into the Edit mode after the voice is initialized.

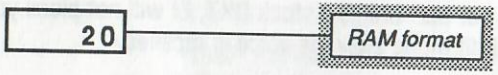
DATA ERASE will let you selectively erase a specific type of data that is stored within the DX7. There are three menus to choose from:

• *PATCH MAPS* will erase the Input Patch Map so that incoming patch change commands will act just as they would on a stock DX7.

• *KEYBOARD PRESET* will erase the 16 Keyboard Presets that are currently stored.

• *BANK ERASE* will erase the Internal Voice Bank that you are listening to.

NOTE: In order to access buttons 19 and 20, Internal Memory Protect must be OFF (button 31).



RAM FORMAT E!'s expanded memory for patches and scales need to be managed in an organized manner. This parameter lets you choose between two formats for memory management (use the data entry slider to choose and then press the YES button to set the format):

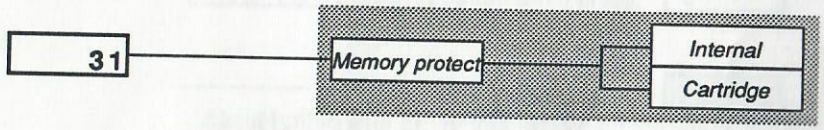
• *VOICE MODE* - In this mode, all 10 Internal Banks are used for patch storage for a total of 320 internal patches with voice and function data. This does not include the optional ROM Preset Voice Library, which is discussed in a separate chapter.

• *SCALE MODE* - In this mode, Internal Banks 0-7 are used to store 256 patches while Internal Banks 8 and 9 are deactivated in order to store 16 user-defined scales (see "The Scales Page). Again, this configuration does not include the optional ROM Preset Voice Library.

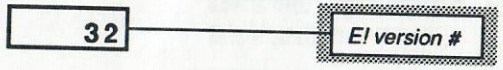
WARNING *Please note that whenever you change the Internal RAM Format some data will be lost. When switching from Voice Mode to Scale Mode information in Internal Banks 8 and 9 will be erased. When switching from Scale Mode to Voice Mode all 16 user-defined scales will be erased.*

Not active

BATTERY LEVEL Pretty straightforward. An acceptable range for the DX7 is between 2.6 and 3.3 volts.



MEMORY PROTECT Although E! does move these parameters from their original position, their functions remain the same.



E! VERSION NUMBER This button has the same function as button 1 on the Function Page. Please refer to this number in all correspondence with GREY MATTER.

Button	Menus
1	Adjust note number
2	Adjust note octave
3	Adjust note value
4	Reset original scale
5	Offset compiler
6	Not active
7	Scale base
8	Notes per octave
9	Equal Tempered compiler
10	Quarter Tone compiler
11-16	Not active
17-32	Scale storage presets

The Scales Page

The fourth System Page is the Scales Page, where the tuning of the DX7 itself is user programmable, allowing you to create most any scale imaginable. The parameters on this page will let you tune notes individually or globally with E!'s exclusive Tuning Compilers and then store up to 16 of these alternate tunings to play with any DX7 voice. Please note that this manual is not meant to be an authoritative tutorial on the subject of microtonality or alternative temperaments in music, but rather a guide through the various features of E! The Scales Page can be reached by pressing the FUNCTION button once and then the OPERATOR select button three times.

About tuning with E!: Before explaining the function of each button on this page, here is a little backround on the internal scale system that drives the DX7. Internally, the DX7 uses a scale with 4096 steps, or *points*, per octave; this *point* is the unit of measure for all values in E!'s micro-tuning system. If you are already familiar with the *cent* as a unit of measure in micro-tuning, converting cents into points is a very simple procedure. Just follow this equation:

Points = (Cents/1200) X 4096

number of points per octave

number of cents per octave

Converting points into cents is just as simple:

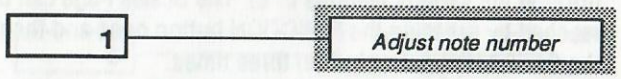
Cents = (Points/4096) X 1200

Individual note adjustment

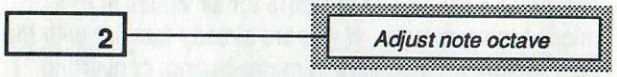
With buttons 1,2, and 3 you can adjust the pitch of each note individually. While these three buttons may control different parameters, it is their composite value, found on the bottom of the LCD screen, that determines the pitch of any note (see example).

045 Num= 03.3072

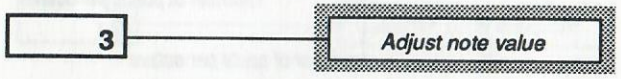
read as "Note number 45 is 3,072 points above the beginning of the 3rd octave."



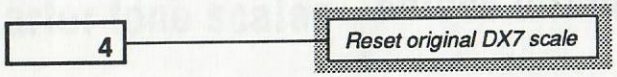
ADJUST NOTE NUMBER Any note in the MIDI range of 0-127 can be adjusted. The range of the DX7 keyboard itself is 36-96.



ADJUST NOTE OCTAVE Choose any octave within a range of 0-10.

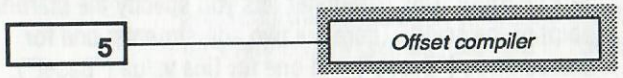


ADJUST NOTE VALUE This button has two adjustments: one for coarse pitch value and one for fine pitch value.



SCALE RESET will load the DX7's original scale into memory (twelve tone, equal tempered).

Twelve tone scales



OFFSET COMPILER This is one of E!'s exclusive Tuning Compilers, designed to make global scale adjustment fast and simple. The Offset Compiler lets you set specific offsets for each of the twelve notes of the "normal"(equal tempered) scale. To select a note to offset just press this button repeatedly - the LCD screen will tell you the name of the note you are adjusting (i.e. A, A#, B, etc.), the range of the adjustment ("c" for coarse, "f" for fine), and the current offset value of that note (use the data entry slider to adjust the value). *The note you are adjusting will be offset for every octave automatically.* This compiler makes it easy to construct a "blues scale" with a slightly lower tuning for the flat third, fifth, and seventh degrees, or a Lydian scale with a slightly raised sharp 4th, or a scale with Just Intonation.

Not active

Equal tempered scales

With buttons 7,8, and 9 you can set up equal tempered scales with as few as 1 and as many as 99 notes per octave. To create such a scale you should specify the values for buttons 7 and 8 before using button 9 to compile the scale.

7 — *Scale base*

SCALE BASE This parameter lets you specify the starting point of the scale. There are two adjustments: one for coarse value ("Basec") and one for fine value ("Basef"). This is an important feature because it allows scales with many notes per octave to be played on the DX7 keyboard in a range that is useful to you. For example, if you compile a scale with 61 notes per octave, the entire DX7 keyboard will have a range of one octave. Adjusting the Scale Base will determine WHICH octave the keyboard will play (and remember, there are 4096 points per octave).

8 — *Notes per octave*

NOTES PER OCTAVE Choose anywhere between 1 and 99.

9 — *Equal Tempered compiler*

EQUAL TEMPERED COMPILER Another of E!'s exclusive Tuning Compilers, this button will take the Scale Base and Notes Per Octave values and quickly compile them into an equal tempered scale.

Quarter tone scales

10 — *Quarter Tone compiler*

QUARTER TONE COMPILER The final Tuning Compiler lets you set up scales where one or more of the twelve tones is HI/LO by exactly one-quarter tone. To select a note to adjust, press this button repeatedly - the LCD screen will tell you the name of the note that you are adjusting (i.e. A, A#, B, etc.) Then use the data entry slider to adjust the value of the note. The note you are adjusting will be raised or lowered a quarter automatically for every octave (see the example in "Getting Started").

11-16 *Not active*

Storing a scale

17-32 — *Scale storage presets*

SCALE STORAGE PRESETS After you have finished a scale using the parameters just discussed you can put it into memory for permanent recall. Buttons 17-32 are where you store up to 16 alternate tunings.

see next page for storing procedure

To store a scale, two conditions must be true:

1) E! must be in the Scale Mode of RAM Format *(please read the discussion on RAM Format in The Memory Page ,button 20 before changing modes).*
2) Internal Memory Protect must be OFF (Memory Page, button 31).

If these conditions have been met, the procedure for storing a scale is simple:

1) Press and hold the STORE button while in the Scales Page (the LCD should read "Ready to store a scale . . ").
2) As you hold the STORE button, press the Scale Storage Preset that corresponds to the number of the scale that you are storing (button 17 = scale 1, button 18 = scale 2, , , , button 32 = scale 16).

Your tuning is now stored into memory.

BIBLIOGRAPHY

The following list, though far from complete, contains publications that will provide additional information regarding microtuning, scales, and historical temperaments.

Books

On the Sensations of Tone
written by Hermann Helmholtz
published by Dover Publications
180 Varick St.
NY, NY 10014

Genesis of a Music
written by Harry Partch
published by Da Capo Press
227 West 17th St.
NY, NY 10011

Fundamentals of Musical Acoustics
written by Arthur H. Benade
published by Oxford University Press
NY

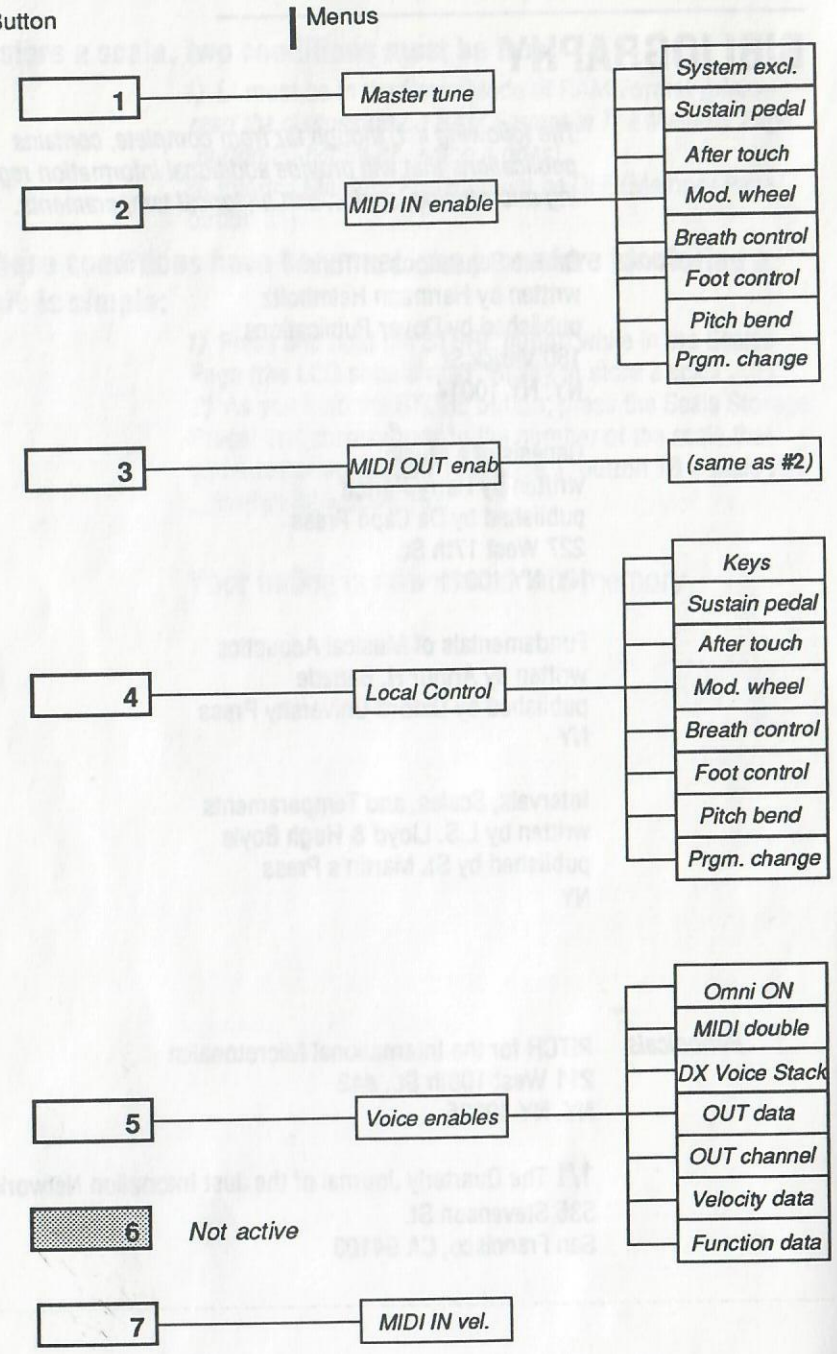
Intervals, Scales, and Temperaments
written by L.S. Lloyd & Hugh Boyle
published by St. Martin's Press
NY

Periodicals

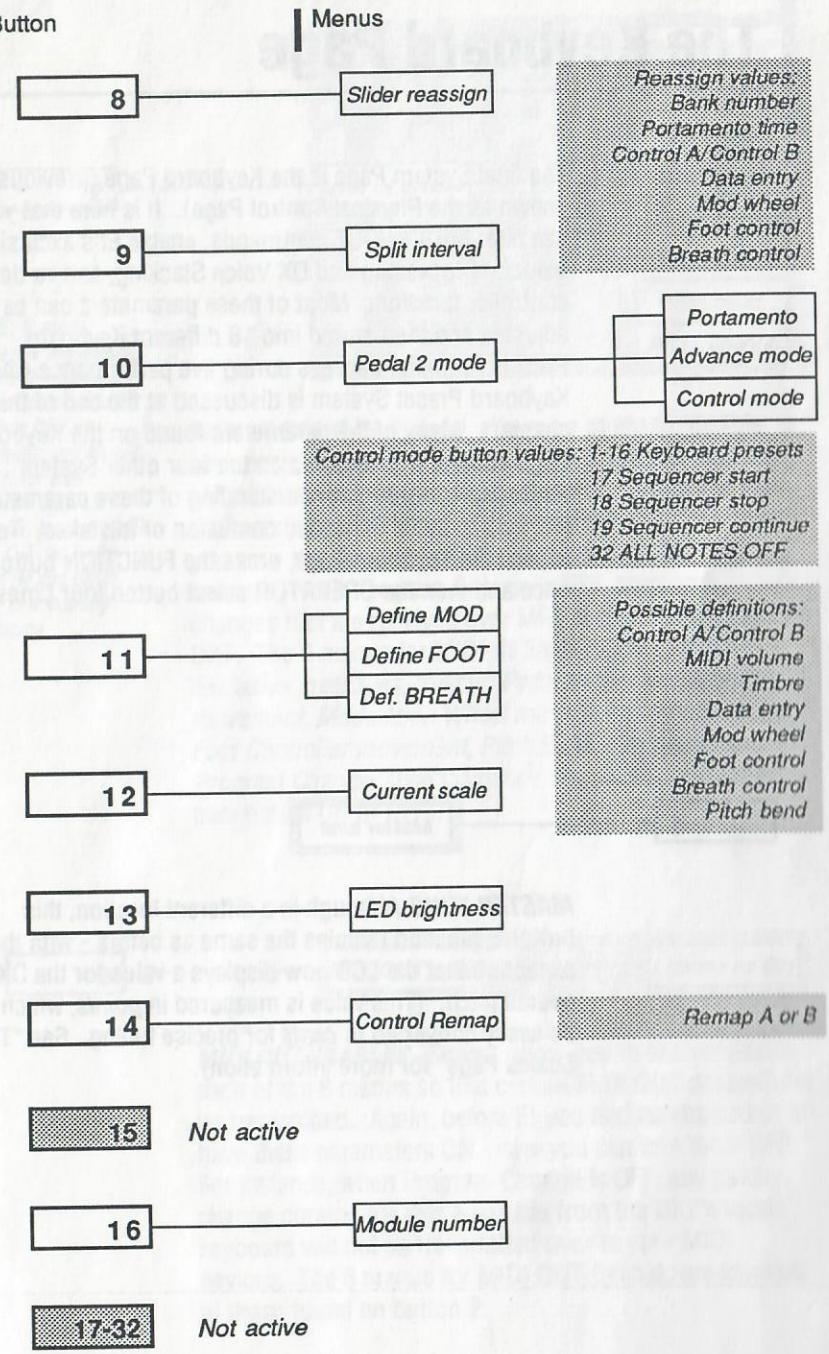
PITCH for the International Microtonalist
211 West 108th St., #42
NY, NY 10025

1/1 The Quarterly Journal of the Just Intonation Network
535 Stevenson St.
San Francisco, CA 94103

KEYBOARD PAGE



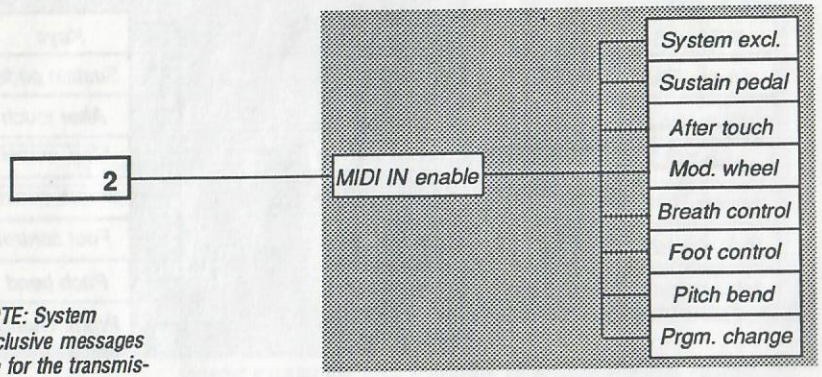
KEYBOARD PAGE



The Keyboard Page

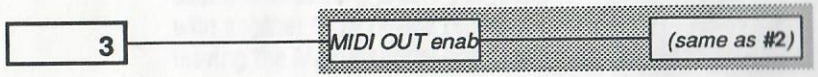
The final System Page is the Keyboard Page (previously known as the Physical Control Page). It is here that you can filter MIDI IN/OUT commands, enable E!'s exclusive Velocity Processing and DX Voice Stacking, and re-define controller functions. Most of these parameters can be adjusted and then stored into 16 different Keyboard Presets for instant access during live performance (the Keyboard Preset System is discussed at the end of this chapter). Many of the parameters found on the Keyboard Page interact with features on the four other System Pages, so a thorough understanding of these parameters will help to avoid unneeded confusion or mistakes. To access the Keyboard Page, press the FUNCTION button once and then the OPERATOR select button four times.

MASTER TUNE Although in a different location, this button's function remains the same as before - with the exception that the LCD now displays a value for the DX7's overall pitch. (This value is measured in *points*, which can be easily converted to *cents* for precise tuning. See "The Scales Page" for more information).

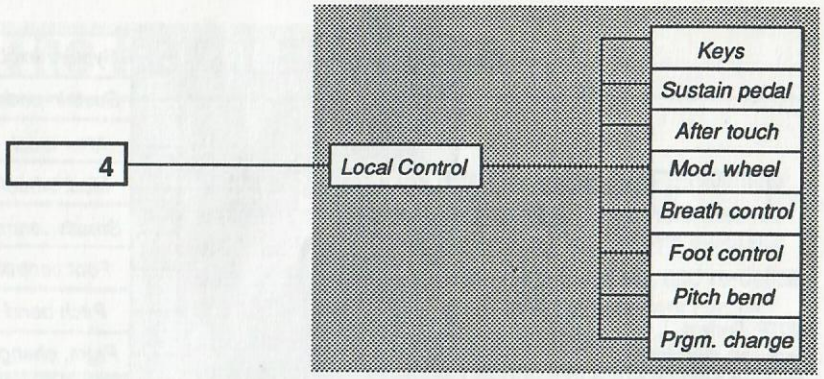


NOTE: System Exclusive messages are for the transmission of voice data to another DX7 or computer and should be ON for that purpose only. In general, leave SYS/EX data OFF for both MIDI IN and MIDI OUT to avoid any problems.

MIDI IN ENABLES *(Filters)* allow you to enable/disable each of this button's 8 menus so that a specific part of MIDI IN data will be ignored by the DX7. Originally, the DX7 was fixed with most of these parameters ON - now you have the choice to selectively turn them OFF. For instance, when Program Change is OFF, any patch changes that are received over MIDI will be ignored by the DX7. The 8 menus for MIDI IN Enables are: *System Exclusive messages, Sustain Pedal movement, AfterTouch movement, Modulation Wheel movement, Breath Control, Foot Controller movement, Pitch Bend movement*, and *Program Changes* (use the data entry slider to turn these parameters ON or OFF).

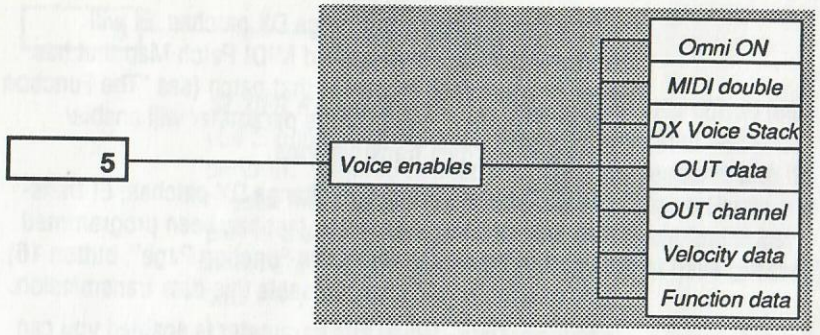


MIDI OUT ENABLES *(Filters)* allow you to enable/disable each of the 8 menus so that certain MIDI OUT data will not be transmitted. Again, before E! you had no choice but to have these parameters ON - now you can turn them OFF. For instance, when Program Change is OFF, any patch change commands that are made from the DX7's local keyboard will not be transmitted over to your MIDI devices. The 8 menus for MIDI OUT Enables are identical to those found on button 2.



***LOCAL CONTROL ENABLES** (Filters)* has 8 menus, each one allowing a specific function of the DX7's local facilities (Wheels, Pedals, AfterTouch, etc.) to be ignored by the DX7 and only transmitted over MIDI (presuming that it doesn't conflict with your MIDI OUT Enables). For instance, when Program Change is OFF, the patch change buttons will have no effect on the voice that the DX7 is playing, but a patch change command will still be transmitted over MIDI. The 8 menus for Local Control Enables are: *Keys, Sustain Pedal movement, AfterTouch movement, Modulation Wheel movement, Breath Control, Foot Controller movement, Pitch Bend movement*, and *Program Changes* (use the data entry slider to turn these parameters ON or OFF).

NOTE: If you are using a sequencer and want your DX7 to respond with "Local Control OFF", turn ALL of the Local Control Enables OFF.



VOICE ENABLES has 7 menus to enable/disable certain features or groups of features in the E! System Pages. The parameters found under this button are integral to the proper function of many of E!'s features - it may prove helpful to know the use of these parameters well.

• *MIDI OMNI* allows the DX7 to receive ALL incoming MIDI data regardless of the channel assigned to MIDI IN data on the MIDI Page.

• *MIDI Double* determines whether notes played by the DX7 will also be transmitted over the Auxiliary Channel to another MIDI device. Please note that MIDI Double transmits on the Aux. Channel, not the Main Channel, and that the Aux. Channel number and the Main Channel number must be different (see "The MIDI Page", buttons 2 and 3). Also , remember that the Aux. Channel will respond to Key ON/Key OFF commands only. This parameter can be useful in situations where you would like to layer the DX7 with another MIDI device (such as a TX module) while still leaving the Main Channel open for a separate MIDI device.

• *DX Stack* determines whether notes that are played by the DX7 will be voiced on two FM channels simultaneously (i.e., it's like playing the same DX7 voice twice). This parameter can be combined with Random Detune (Function Page, button 13) to simulate a random chorus effect on each note. Please note that when DX Stack is enabled the DX's polyphony is reduced to 8 notes playable at one time.

• *OUT Data* - When you change DX patches, E! will transmit the MIDI Volume and MIDI Patch Map that has been programmed as part of that patch (see "The Function Page", buttons 1 and 2). This parameter will enable/disable these data transmissions.

• *OUT Channel* - When you change DX patches, E! transmits a MIDI Channel number that has been programmed as part of that patch (see "The Function Page", button 16). This parameter will enable/disable this data transmission.

• *Velocity Data* - When this parameter is enabled you can adjust the Velocity Curves (see "The Function Page", button 10). When it is disabled you cannot adjust the Velocity Curves and E! will automatically choose the LIN1 ("normal") Velocity Curve each time you change patches.

• *Function Data* determines how function data is stored in the DX7. If this parameter is enabled, function data will be programmable per patch. If it is disabled, the global function data set will be called every time a patch is changed (just like a stock DX7).

6 *Not active*

7 — *MIDI IN vel.*

MIDI IN VELOCITY SHIFT lets you choose a value that will be subtracted from the velocity of any notes that are received through MIDI. You can use this parameter to alter how "hard" a sequencer or external master controller drives the DX7.

8 — *Slider reassign*

SLIDER REASSIGN As the name implies, this button lets you choose which function the data entry slider will perform. When re-defined, the slider will respond with its chosen function only when you exit the System Pages and play in the "Live" mode. There are 9 possible functions, which are chosen by moving the (you might have guessed) data entry slider:

• *MIDI Volume* lets you use the slider to control the volume of any remote equipment that allows the reception of a master volume controller (known in the MIDI spec as controller #07h). Please note that the volume of the DX7 is not affected by data entry slider movements while in this mode.

• *Bank Number* lets you use the slider to choose internal (and preset) banks of memory without affecting the current patch being played. Any future patch changes will be taken from the bank that you select. Please note that this bank number change is not transmitted over MIDI.

• *Portamento Time* lets you control the DX7's portamento time with the slider.

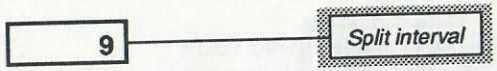
• *Controller A*
• *Controller B*
These have been included to keep E! up-to-date with newly defined MIDI controllers. The MIDI controller number that these values correspond to can be set with the Controller Remap parameter on button 14.

• *Timbre* lets you control the "brightness" of a DX7 patch with the slider for quick voice editing during live performance (see "The Function Page", button 14 for more information on E!'s Timbre adjustment).

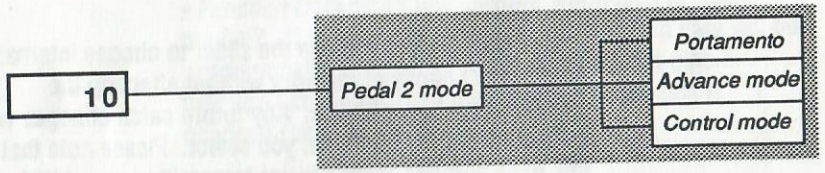
• *Data Slider* lets you define the slider as a MIDI data entry slider. Use this if your MIDI equipment must be controlled by a data entry slider.

• *Foot Control* turns the slider into a foot controller.

• *Breath Control* turns the slider into a breath controller.



FLOATING SPLIT INTERVAL One of E!'s Key Assign modes (chosen on the Function Page, button 13), the Floating Split has a split point that actually "floats", due to a pre-determined interval that E! "counts down" from the top note being played. It is with this button that you choose the split interval. The interval value on the LCD screen represents an actual musical interval - for example "-2" means a minor second, while "+4" means an augmented fourth. Of course there is no "-4" because there is no musical interval called a "minor fourth".



PEDAL 2 MODE lets you re-define the DX7's Portamento Pedal to have one of three different functions:

• *Portamento Mode* will allow Pedal 2 to function the same way it does on a stock DX7.

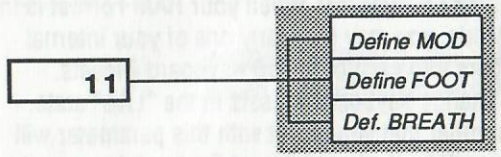
• *Control Mode* will allow Pedal 2 to work in conjunction with the patch select buttons to access the Keyboard Preset System and the start/stop/continue commands for sequencers and drum machines. While you depress Pedal 2 in the Control Mode, pressing the patch select buttons will not select patches. Instead, the DX7 will carry out one of the below-listed functions:

Buttons 1-16: choose Keyboard Presets 1-16 (see "The Keyboard Preset System" for more information)
Button 17: sequencer/drum machine START
Button 18: sequencer/drum machine STOP
Button 19: sequencer/drum machine CONTINUE
Buttons 20-31: not active
Button 32: ALL NOTES OFF

NOTE: If you turn the DX7 on without a pedal in the jack marked "Portamento Pedal", E! will automatically reset this parameter to Portamento Mode.

About START /STOP /CONTINUE: When you choose these commands, E! will simply transmit a MIDI start/stop/continue command through the DX7's MIDI OUT port (as opposed to a full MIDI clock command). Unfortunately, some MIDI sequencers and drum machines will not accept these commands due to a limitation in their software. Grey Matter are not responsible in any way for limitations in other manufacturer's products.

• *Advance Mode* lets you to use Pedal 2 as a patch advance foot switch. When in this mode, the DX7 will recall a patch from the Input Patch Map without the need for an incoming patch change command from an external MIDI device (see "The MIDI Page", buttons 11,12, and 13). While holding Pedal 2 down, you may press one of the first 12 patch select buttons to move to a specific area in the Input Patch Map.



CONTROLLER DEFINITIONS With this button you will be able to re-define the Modulation Wheel, Foot Control, and Breath Control as any one of 9 controller definitions while playing the DX7 in the "Live" state. Simply select the menu and use the data entry slider to choose the controller definition. The choices are:

• *MIDI Volume* lets you use the controller to change the volume of any remote MIDI device that allows the reception of the master volume controller (controller #07h). The volume of the DX7 is not affected by controller movements while in this mode.

• *Controller A*
• *Controller B*

These have been included to keep E! up-to-date with newly defined MIDI controllers. The MIDI controller

number that these values correspond to can be set with the Controller Remap parameter on button 14.

- *Timbre* lets you control the "brightness" of a DX7 patch with the controller for quick voice editing during live performance (see "The Function Page", button 14 for more information on E!'s Timbre adjustment).
- *Data Slider* lets you define the controller as a MIDI data entry slider. Use this if your MIDI equipment must be controlled by a data entry slider.
- *Mod Wheel* turns the controller into a modulation wheel.
- *Foot Control* turns the controller into a foot control.
- *Breath Control* turns the controller into a breath control.
- *Pitch Bend Up/Down* turns the controller into a pitch bend.

12 — *Current scale*

NOTE: The DX7's internal RAM Format must be in the Scale Mode in order to access this button (see "The Memory Page", button 20).

CURRENT SCALE NUMBER When your RAM Format is in the Scale Mode, you may store any one of your internal scale numbers into each of the 16 Keyboard Presets. When you change Keyboard Presets in the "Live" state, the scale number that you select with this parameter will be active (see "The Keyboard Preset System" for more information).

13 — *LED brightness*

LED BRIGHTNESS This parameter is included in order to reduce power consumption on the DX7. Use the data entry slider to choose which level of brightness is most comfortable for you.

14 — *Control Remap*

CONTROLLER REMAP Use this parameter to set a MIDI controller number for E!'s undefined Controllers A and B. Just select a menu and adjust the MIDI controller number with the data entry slider.

15 *Not active*

16 — *Module number*

MODULE NUMBER This is for use with editor/librarians which support parameters that are unique to E!

17-32 *Not active*

The Keyboard Preset System

In a live performance situation, you may need to change the parameters on the Keyboard Page very quickly between songs, even during songs. At one moment you might want the Foot Controller re-defined as a pitch bend and one of your own alternate tunings the current scale, while at the next moment you may want Local Control OFF on the DX7. The Keyboard Preset System has been designed with just that in mind. Keyboard Presets (previously called "Physical Presets") are comparable to "Performances" on Yamaha's new DX7II series - you can adjust the parameters on the Keyboard Page and then store them into one of 16 programmable Keyboard Presets. The parameters that are programmable on the Keyboard Page are:

MIDI IN Enables (button 2)
MIDI OUT Enables (button 3)
Local Control Enables (button 4)
Voice Enables (button 5)
MIDI IN Velocity Shift (button 7)
Slider Reassign (button 8)
Floating Split Interval (button 9)
Controller Definitions (button 11)
Current Scale Number (button 12)

To store a Keyboard Preset, two conditions must be true:

1) Your DX7 must be in the Keyboard Page.
2) Internal Memory Protect must be OFF (Memory Page, button 31).

If both of these conditions have been met, then press and hold the STORE button (the LCD should read " Ready to store Physical Preset. . .") while you select one of the 16 Keyboard Preset locations (buttons 1-16). Your Keyboard Preset is now stored for instant recall.

To recall a Keyboard Preset during a performance, the Pedal 2 Mode (button 10) must be set to Control. Simply depress pedal 2 and choose one of the 16 Keyboard Presets.

The ROM Preset Voice Library (optional)

The E! circuit board was designed with future expansion in mind - one possible addition to your E!quipped DX7 might be the optional ROM Preset Voice Library which would give you 8 more banks of voices for a total of 576 internal patches. These voices are not factory preset, but rather a permanent collection of your own DX7 voices - all with individual function data. If you have a set of your own "standard" DX7 patches that you would like put into a ROM Preset Voice Library, contact Grey Matter for more information.

The Official E! Sticker

Proper installation of E! requires that the handsome E! Sticker be affixed to the front panel of your DX7. Making sure that there is no oil or dirt on the metal, simply remove the backing and carefully place the sticker between the DX7 logo and the algorithm charts. Remove any bubbles by gently pushing them out with your finger.

Social Fear of Creativity

Reprinted from GESTALT THERAPY: EXCITEMENT AND GROWTH IN THE HUMAN PERSONALITY by Frederick Perls, M.D.; Ralph F. Hefferline, Ph.D.; Paul Goodman, Ph.D.
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There is an epidemic fear of spontaneity; it is the "infantile" par excellence, for it does not take into account the so-called "reality"; it is irresponsible. But let us consider the social behavior in a usual political issue, and see what these terms mean. There is an issue, a problem; and there are opposing parties: the terms in which the problem is stated are taken from the policies, vested interests, and history of these parties: and these are considered to be the only possible approaches to the problem. The parties are not constituted from the reality of the problem (except in great revolutionary moments), but the problem is thought to be "real" only if stated in the accepted framework. But in fact neither of the opposing policies spontaneously recommends itself as a real solution of the real problem; and one is therefore continually confronted with a choice of the "lesser of two evils". Naturally such a choice does not excite enthusiasm or initiative. This is what is called being "realistic".

The creative approach to a difficulty is just the opposite; it tries to advance the problem to a different level by discovering or inventing some new third approach that is essential to the issue and that spontaneously recommends itself. (This then would be the policy and the party). Whenever the choice is merely and exclusively the "lesser evil", without envisaging the truly satisfactory, it is likely that there is not a real problem but the mask of a real conflict that no-one wants to envisage. Our social problems are usually posed to conceal the real conflicts and prevent the real solutions - for these might require

grave risks and changes. If a person, however, expresses a real irk, or simple common sense, and aims at a creative adjustment of the issue, this person is called escapist, impractical, utopian, unrealistic. It is the accepted way of posing the problem, and not the problem, that is taken for the "reality". We may observe this behavior in families, in politics, in the universities, in the professions. (So afterwards, we notice how past eras, whose social reforms we have outgrown, seem to have been so stupid in some respects. We see now that there was no reason why a spontaneous approach, or a little common sense, could not not easily have solved their problems, prevented a disastrous war, etc., etc. Except that, as history shows, whatever fresh approach was at that time suggested, was simply not "real.")

Most of the reality of the Reality-principle consist of these social illusions, and is maintained by self-conquest. This is obvious if we consider that in the natural sciences and in technology, where they are at their best, every kind of guess, wish, hope, and project is entertained without the least guilt or anxiety; the real subject matter is not "conformed to" but is observed with fascination and experimented on with temerity. But in other affairs (where face must be saved) we have the following circle: the Reality-principle makes creative spontaneity otiose, dangerous, or psychotic; the repressed excitement is turned more aggressively against the creative self; and the "reality" of the norm then is experienced as real indeed.

The most dismal timidity is not the fear of instinct nor of doing injury, but the fear of doing something in a new way of one's own; or to omit doing it if one is not really interested. But people consult manuals, authorities, newspaper columnists, informed opinion. What picture of the self will one then draw? It is not even assimilative, no less creative; it is introjective, additive, and regurgitating.

Trouble Shooting

Here are some helpful tips on common "problems" with E!

- ***CAN'T STORE FUNCTION DATA PER PATCH***

When E! is first installed it attempts to help you use your DX7 immediately by disabling any feature that it thinks may confuse you; to re-enable Function data go to the Keyboard Page and push button 5 until the LCD screen reads "Function Data OFF" - you want to turn this feature ON. Function data is now storable per patch.

- ***VELOCITY PROCESSORS AREN'T WORKING***

Go to the Keyboard Page and push button 5 until screen says Velocity OFF - you should turn this feature ON. Now you can adjust the velocity curves on the Function Page, button 10 (except the LIN1 curve, which is not adjustable.)

- ***DX7 MAKES NO SOUND***

There are two possibilities: (1) The programmable Volume on the Function Page (button 8) is incorrectly set, or (2) the Key Limits on the Function Page (button 15) are set in such a way as to not allow any note to be voiced.

- ***DX7 ACTS STRANGELY WHEN HOOKED UP TO SEQUENCER***

There are two possibilities: (1) Some sequencers have a MIDI Echo which will form a MIDI data loop if an E!quipped DX7 has the Merge functions enabled. To break this loop, go to the MIDI Page and use button 7 to turn all three merges (SEQ, CONT, KEY) OFF, or (2) The DX7 may be transmiting or receiving SYS/EX data. Go to the Keyboard Page and turn both MIDI IN and OUT SYS/EX OFF (buttons 2 and 3).

- ***E!'s SEQUENCER START / STOP FEATURE DOESN'T WORK***

Some sequencers will not accept external start/stop commands in the absence of MIDI clock. E! cannot control these types of sequencers.

- ***CAN'T STORE EDITED VOICES***

Voice storage on an E!quipped DX7 is exactly the same as a stock DX7 - simply remove the memory protect by going to the Memory Page, push button 31 twice and turn it OFF before following Yamaha's storage procedures.

- ***CAN'T LOAD VOICES FROM COMPUTER***

Remove memory protect (see previous tip), go to the Keyboard Page and push button 2 to turn SYS/EX ON. The data transfer should now work. After the transfer is complete the LED's will read AV(for All Voices) or AF(for All Functions) or CV(for Current Voice) or CF(for Current Function).

- ***CAN'T STORE KEYBOARD PRESETS***

Keyboard Presets are stored in the same manner that a stock DX7 stores voices. Start by removing memory protect (see the "CAN'T STORE EDITED VOICES " tip), then go to the Keyboard Page and set up all parameters as you want them to be stored. Now, from the Keyboard Page, push and hold the STORE button and press one of the first 16 voice selections. The LCD screen should now read "Physical Preset now stored".

- ***THE KEYBOARD PRESET EDIT BUFFER IS NOT RETAINED***

When the DX7 is powered up it automatically recalls the last used Keyboard Preset from memory - therefore, any edits made to the Keyboard Preset Edit Buffer will be lost unless that data is stored into one of the 16 Keyboard Presets before power down (see previous tip).

- ***A SPECIFIC CARTRIDGE WON'T MAKE SOUND***

Some Yamaha format cartridges contain data errors that tell an E!quipped DX7 that the cartridge is in GMR format. When this happens bad function data is loaded into the DX7; to solve this (1) load the cart. into memory, (2) reformat the cart. as a Yamaha cart., and (3) resave the data to the cart.

TROUBLE SHOOTING

- ***CAN'T CHANGE VOICE NAME***

  E!'s name editor works differently than a stock DX7's. Go into the Edit mode and push button 32 each time you want the cursor to move to the right. Use the data entry slider and the +/- buttons to change the character at the cursor position.

- ***CAN'T CHANGE VOICE TRANSPOSE***

  While in the Edit mode, push button 31 to enable Key Transpose - use the data entry slider to adjust the transpose value.

- ***LEDs ARE DIM / GO OFF***

  The LED brightness control is accessed on the Keyboard Page, button 13 (adjust the brightness with the data entry slider). This feature was included to reduce the power consumption of the DX7.